What Stubs and Sparkles in Vast Vats of Liquid Will Tell Us About Exploding Stars

Speaker: Kate Scholberg
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Colorado State University
4:00 PM Monday, March 7, 2016
Refreshments at 3:45 PM
Location: 120 Engineering (Hammond Auditorium)

Abstract
When a massive star collapses at the end of its life, nearly all of the gravitational binding energy of the resulting remnant is released in the form of neutrinos. I will discuss the nature of the core-collapse neutrino burst and what we can learn about particle physics and about astrophysics from the detection of these neutrinos. I will cover supernova neutrino detection techniques in general, current supernova neutrino detectors, and prospects for specific future experiments.

Biographical Sketch
Kate Scholberg is Professor of Physics and Bass Fellow at Duke University. She received a B.Sc. in Physics from McGill University in 1989. She then attended Caltech, receiving an M.S. in 1991 and a Ph.D. in 1997 for thesis research on the MACRO experiment at Gran Sasso Laboratory in Italy. As a research associate at Boston University, she joined the Super-Kamiokande collaboration. She was Assistant Professor at MIT from 2000-2004 before moving to Duke University. A recipient of the DOE Outstanding Junior Investigator and NSF CAREER awards, she is currently a member of the Super-Kamiokande, T2K, and Deep Underground Neutrino Experiment collaborations. She is spokesperson of the COHERENT experiment, which will do neutrino physics at the Spallation Neutron Source at Oak Ridge National Laboratory. She coordinates the SuperNova Early Warning System, an international network of supernova neutrino detectors. She was elected as an APS Fellow in 2013.